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ABSTRACT

Early reading should be studied from three perspectives: the function of print, the form of print, and the conventions of print. In so doing, it may be possible to avoid some of the hazards that have plagued the field, such as unsubstantiated assumptions about beginning reading and how it should be taught, erroneous beliefs that maturation plays an overriding role in learning to read, and shortsighted approaches to assessment of young children's knowledge of and progress in early reading. Two case studies of young children demonstrated how to avoid these hazards. First, they showed that young children are learning about reading before they read, and that if researchers study children's attempts, they will be in a firmer position to offer reading instruction. Second, looking at children's responses with contrasting tasks and with the same task over a period of time helped to demonstrate how reading experiences play a more substantial role in learning to read than does maturation. Third, studying children's patterns and attempts to participate in reading tasks gives richer information about what they are learning than does tabulation of their correct responses. (FL)

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CENTER FOR THE STUDY OF READING

Technical Report No. 318

ACQUISITION OF KNOWLEDGE ABOUT READING IN THE PRESCHOOL PERIOD: AN UPDATE AND EXTENSION

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Abstract

An argument is made that early reading ought to be studied from three perspectives: the function of print, the form of print and the conventions of print. In so doing it may be possible to avoid some of the hazards that have plagued the field, namely, unsubstantiated assumptions about beginning reading and how it ought to be taught, erroneous beliefs that maturation plays an overriding role in learning to read, and shortsighted approaches to assessment of young children's knowledge of and progress in early reading.

Acquisition of Knowledge About Reading in the Preschool Period: An Update and Extension

Think back to your childhood. Do you have a memory about learning to read? Many of us do. When I ask this question to those who have a distinct memory about when or how they learned, I find that it is often tied to a particular book. For myself, it was Beatrix Potter's book, Peter Rabbit. Of course, I have no idea now whether it is an accurate memory and whether it helped me to read in school. Did I actually learn to read the book or was I reciting it from memory? What did I learn by memorizing the story and did it help me read other stories? These are questions none of us who have such memories can answer. Furthermore, since young children might read in ways that are unlike adults or older children, the process probably cannot be extrapolated from models of skilled reading. Nevertheless, while it is difficult to gather reliable retrospective data, it is possible to construct processing models from analyses of children's early attempts to read, recite and interpret printed information, and in so doing to chart the development of their approaches to reading.

What a typical child knows about reading before going to school would seem to be a reasonable question. Yet it is one that is fraught with hazards, influenced not as much by research as by the implicit models we have of reading and by the hidden

assumptions we make about how children learn. I will describe three hazards so it will be more apparent why the question has been difficult to answer. Following this I will propose a model of early reading and then will describe data we collected that support some aspects of the model.

Three Hazards to the Study of Early Reading

Instructional assumptions. One hazard to the question, what do preschool children know about reading, is that our views of how reading takes place, and extrapolating from that, how it should be taught, interferes or biases the way we ask the question. This is partly because the field is not in agreement about how reading occurs and, as a result, about how to teach children to read. Look, for example, at the number of alternative programs purporting to show effective ways to teach beginning reading (Aukerman, 1971). To reduce complexity we typically classify them in terms of one or another assumed reading processing model, skill-based or holistic.

Skill-based programs rely on a model of reading in which the beginning reading process is assumed to have a linear quality. The more strictly organized of these is called a code-emphasis program (Beck, McKeown, & McCaslin, 1979) or a linguistic program (Chall, 1967). Proponents of this model, as evidenced from the quotes below, emphasize that the process is initiated with letters, words, or their sounds and then proceeds to larger units of text. It is a "bottom-up" model.

> Once a child begins his progression from spoken language to written language, there are, I think, three phases to be considered. They represent three different kinds of learning tasks, and they are roughly sequential, though there must be considerable overlapping. These three phases are: learning to differentiate graphic symbols; learning to decode letters to sounds; and using progressively high order units of structure. (E. Gibson, 1976, p. 254)

> In the information-processing approach that we have proposed, reading involves the successive recognition of larger and more abstract meaning . . . from the recognition of word meaning to the recognition of the meaning of phrases, sentences and stories. (Venezky, Massaro, & Weber, 1976, p. 695)

> . . . the transformation of written stimuli into meaning involves a sequence of stages of information processing. (LaBerge & Samuels, 1976, p. 551)

Holistic programs assume that the reading process, as well as its instruction, is not linear but interactive and tightly bound to meaning. Some basal reading programs from the 1940's and 1950's (those which featured a whole word approach to beginning reading) and, more recently, language experience programs follow many characteristics of this model. In the next quotes, notice the assumption that reading instruction must be

formed around understanding and interpreting text. They are "top-down" approaches.

> Reading is a psycholinguistic guessing game. It involves an interaction between thought and language. (Goodman, 1976, p. 498)

> . . . a child learns to read by reading. (Smith, 1980, p. 421)

> If learning to read and write is to constitute an act of knowing, the learners must assume from the beginning the role of creative subjects. It is not a matter of memorizing and repeating given syllables, words, and phrases, but rather of reflecting critically on the process of reading and writing itself, and on the profound significance of language. (Friere, 1980, p. 369)

The viewpoint described by the first set of quotes is usually interpreted to indicate that reading has a hierarchical nature. The second emphasizes the interaction between meaning or language and print. A problem with the first viewpoint is that, while the research does indicate that our eyes read and process very small bits of text at a time (see, for example, McConkie, 1982), it can neither be assumed that the young child reads in the same way as an adult nor that the most effective instruction is to recognize first letters, then words, then larger units of

text. One argument against that ordering for instructional purposes is that letters having no intrinsic meaning are not easier to learn than words. Further, words, if placed out of context, often carry very little of their intended meaning (Anderson & Ortony, 1975; Bollinger, 1965). As we showed in a study with children (Mason, Kinseley, & Kendall, 1979), being able to identify printed words (e.g., polysemous words such as pitch, jam, switch) does not guarantee that appropriate context-derived meanings are recognized.

A problem with the second viewpoint is that it lacks a clearly formulated instructional approach. The "look-say" or sight word approach was rejected as a result of Chall's 1967 survey of instructional effects. Other meaning oriented approaches either have not been rigorously evaluated (language experience) or are still being studied (Tharp, 1982). As a result, beginning reading instruction is more influenced by a hierarchical model of reading than by one that focuses on meaning.

While the instructional issue has not been resolved, it can be hedged by taking great care that teachers encourage text understanding and interpretation. More specific changes await evidence from long-term investigations of young children's developing knowledge of reading. By tracking children's knowledge from or before kindergarten when they more often can choose what and how to spend their time and learn, and then

follow them into school, tracking their reading instruction, it might be possible to separate school instructional effects from early home learning effects. For example, in a 1980 study, I observed and tested children throughout their year in a university nursery school. I found that they began learning to read by recognizing their own name, food labels, and traffic signs. Their early awareness of print was centered on highly meaningful words in context and was followed by active attempts to spell words and to analyze words in terms of their letter sounds. Informal follow up indicate that they continued to excel in reading. Bissex (1980) who observed her young son from age four, found that he began learning to read by merging reading and writing with its meaning. Yet teachers are often urged to begin reading instruction with meaningless, out-of-context, letter-sound and word recognition drill. Is this really the most effective initiation into reading? We don't know, but clearly, this is an issue that must be studied.

Learning assumptions. A second hazard to answering questions about what a child knows about reading before going to school is found in assumptions about how children learn. Despite research evidence to the contrary (for example, Brown, 1975; Chi, 1976), many educators appear to believe that what children do and are able to learn is profoundly limited by their age or maturity. The field of reading particularly has been influenced by statements that focus on effects of the chronological or mental

age of the child. For example, a long-standing statement is that "the age of six is the crucial age" for learning to read (Morphett & Washburne, 1931; Heffernan, 1960; Hildreth, 1950). Further, research from the 1920's and 1930's often emphasized how intellectual endowment affects the age a child can learn to read (for example, Cox, 1926; Davidson, 1931). What they and others failed to study in the same depth are relationships between age (or intellectual endowment) and home background experience in learning to read. Hence, conclusions that only age and IQ form important ties to reading have misled educators into believing that early instruction is unimportant.

At one point, an even stronger argument was made that early reading instruction could harm children. Here, for example, is the way Gesell stated the issue:

> The attempt to force reading [by the age of six] frequently leads to temporary or permanent maladjustment and more or less serious disturbance in the course of normal school achievement. (1940, p. 208)

Yet there is no evidence for the assumption that children have an inner biological timetable that dictates when they can learn to read or whether there is an optimal time to learn (Coltheart, 1979). Indeed, Clay (1972) argued that waiting for the "late bloomer" to want to read can damage children because important instruction may then be delayed for too long. Despite these

contrary arguments, however, some parents and preschool teachers are still wary of teaching young children about reading. This point is discussed in Mason (1981) and exemplified later in this chapter respecting a study in a Head Start preschool where the teacher was using an instructional program that ignored early reading constructs, nearly thwarting our attempts to provide reading experiences to children.

A maturational view is often the basis also for separating children into instructional groups. Placed in the lowest group are children who know little about letters, words, and books and given "readiness" activities rather than early reading tasks. The effect can then be that children entering school with substantial knowledge about reading might be encouraged to read while those with less knowledge might be encouraged to cut, paste, color and sort pictures. The irony is that early reading instruction is then avoided for children who most need it.

To countermand beliefs that children's instruction ought to be based on their maturational level of development, knowledge about reading needs to be shown to be a function not only of natural endowment but of various experiences of being read to, of learning letters and having signs and labels identified, of printing and spelling letters and words, and of learning that reading and writing is both meaningful and useful. Studies by Durkin (1966), MacKinnon (1959), and Mason and McCormick (1983) support this view. In our study, 22 rural kindergarten children

who had received reading materials by mail were matched and compared with their classmates who had not. Not only did end of the year kindergarten tests show significant differences between the two groups, but a year later, there was only one low achieving reader among the experimental subjects but six among the controls. Evidently the availability of easy-to-read materials gave academically marginal children an opportunity to learn about and gain confidence in reading. Unlike their matched controls, they were then able to make average or above average reading achievement gains through school instruction.

Assessment assumptions. A third hazard to answering questions about what preschool children know about reading stems from the extent to which educators believe that reading readiness test score differences are more a function of reading and cognitive skills than of metacognitive constructs about how to approach reading tasks and participate in reading lessons. Even though metacognitive constructs must be acquired in part through particular social and cultural experiences (see Cole & Griffin, 1980; Goody, 1982; Heath, 1982; or Resnick, 1981, for elaboration of this point), analyses of reading lesson structures (Collins & Michaels, 1980; McDermott & Aron, 1978) show that instructional procedures fit children of the middle class where individual effort is stressed over cooperation, adult-monitored learning over peer learning, and tutorial-type learning interactions over group participation. It is seldom realized that minority culture

children are, in effect, penalized when they are asked to learn using majority culture social structures and that improvements in learning could occur under conditions where the social patterns are more familiar. For example, Au and Mason (1981) showed that when a teacher understood and accepted children's preferred social interactional pattern in a classroom reading lesson, the children gave far more academically relevant responses than when a teacher insisted on using an interactional pattern that was less familiar to the children.

Because of the large number of adjustments all children must make upon entering school, the apparent lack of attention to metacognitive constructs for reading and how the social environment shapes one's expression and ease or ability to perform means that schools are not meeting the needs of many children. This is an issue that must be addressed and is the focus of a later section of this chapter.

Further information about what children know about reading will require comparisons of its use at home and community with its presentation in kindergarten and first grade. We must find out not only how middle class children understand and are dependent upon printed information but how other groups understand and use it. How is printed information utilized for daily living, working, learning, and recreation among families from various social classes, cultures, and geographic areas? How well is home reading matched with school reading activities,

materials, and procedures? What kind of community support for reading and writing is there to help children read and to what extent do schools rely on community support systems? These are some of the questions that need to be answered in order to make effective use in schools of possible community support.

In summary, the question about what children know about how to read has been obscured by beliefs (1) about the process of reading and its instruction, (2) about the effect of maturation on learning, and (3) about the way children ought to be tested. We can and must consider how these beliefs have limited an understanding of what children know about reading before they go to school as well as the attempts to establish effective instructional practices. In the following section I have proposed a processing model of young children's reading that draws on metacognitive constructs and that assumes early reading experience, not merely maturation, lies on the causal path to reading success.

A Theoretical Perspective of Early Reading

Theories about early reading need to be concerned with what children understand as they learn to read and how their understanding is modified through reading and instruction. That is, early reading should be couched foremostly in terms of the learner's understanding rather than how the expert reader processes print; it should emphasize the role of experience rather than maturation; and it should accept that school success

stems from metacognitive knowledge about how to approach reading tasks and interact with teachers as well as cognitive knowledge about how to decode and interpret text. These three assumptions are embedded in the following model.

Expanding on an earlier model (Mason, 1981), I propose that children experience and develop concepts about three knowledge domains: (1) the use of print and its relationship to oral language (function of print), (2) rules for relating print to speech sounds (form of print), and (3) procedures for engaging in the act of reading and for discussing with others what one has read (conventions of print and metacognitive constructs for doing reading tasks). The third domain is tied to metacognition because children must learn self-regulative functions of planning, monitoring, and evaluating their early reading activities as they learn to read. Thus, while young children may not have the prerequisite metacognitive knowledge to take a cognitive endeavor as its object, they can regulate some of their reading activity (distinction from Flavell, 1981). They can develop procedures to organize, keep track of, and check the reading activities with which they are engaged.

Knowledge Domains of Early Reading

Function of print. This domain regards the tie between the meaning or intent of oral language and comparable written language. It can be supposed that realizing the functional relation of print to meaning occurs through informal, often

incidental, occasions of linking print to familiar words and phrases. This suggests that children begin to learn how print has meaning, how it fits their oral language, and how it can be inferred from its context principally through unsystematic and idiosyncratic learning experiences.

How might children learn about the functional tie between their language and print? Since most children watch television, they hear TV announcers emphasize a product name and see the printed label displayed on the screen. They could hear a parent announce a trip to a particular store and, accompanying the parent, see the store name displayed in bold letters. The place where a relative works could be pointed out and named. A parent might choose a labeled food product from a grocery or kitchen shelf and name it or even point out the word on the label. Children's own names might be printed for them. Road signs are likely to be pointed out, book titles may be referenced and words in stories may be identified.

Having printed words pointed out, named, and printed ought to help children to segment their speech into units that correspond to printed words. This may be similar to early language learning when children begin to recognize word separations in the stream of speech that correspond to meaningful objects and actions. However, relating printed words to speech may be more complicated than relating speech to meaning because function words and word endings are often not uttered distinctly.

How many of us, as children, thought "My country tis of thee" was comprised of 3 words until we saw it printed and could read.

Not only are words difficult to distinguish in speech but objects are often not referenced as they are labeled on packages, making it difficult for children to match spoken words with the printed words. For example, on my kitchen counter were two bags of fruit. One said, "TEXAS GARDEN CITRUS"; nowhere on the package was the word, "grapefruit." Similarly, the bag of apples was labeled, "Belle of Belding." On these packages, as often occurs, the words used to label products are not there or are in small letters to the side of the product name. Finally, learning to identify print is difficult because stories are not necessarily read to children as they are written. In one of our surveys, one third of the parents reported that they sometimes "tell" a story instead of reading it, leading children to erroneous impressions of how to interpret print (see Bissex, 1980, or Holdaway, 1979, for examples).

If adults are aware of these problems, and if they provide children with many opportunities to try to read, it is clear that many can learn on their own to name and remember printed words. For example, in data being analyzed by myself and colleagues from Vancouver, British Columbia, kindergarten children were asked to read words on labels (e.g., Jello, Coca-Cola, baby powder, crayons). When the word included the picture, the average score was 97.5%; when given without the picture it was still high,

79.1%. Thus, even though some printed words are seldom referenced in our labeling and others are hard to find on the object or package, it is apparent that many words, particularly signs and labels (own name, names of important people and objects, food labels, and explicit signs such as STOP) are learned before children go to school. They indicate children's beginning acquisition of the concept that print can represent words they know about events, actions and objects. Nonetheless, these early reading experiences are presumed to be informal or not carefully organized by parents. Hence, it is likely that the development of functional concepts is affected by the amount of print that exists in children's environment, by the uses to which print is put by significant others, by the clarity with which reading experiences are tied to meaning, and by the extent to which children can test and get helpful responses from adults about printed information.

Form of print. I refer to the more mechanical domain of print as its form and structure. Initiated by learning to name and recognize letters, it seems to be centered at first on letter shapes and letter distinctions; later it extends to letter-sound recognition. However, because the structure of our grapho-phonological system is so complex, preschool children can be helped by parents, the community, and preschool teachers. Parents might introduce the alphabet with alphabet posters, alphabet blocks, alphabet books, alphabet cereal, alphabet

cookies, alphabet soup, etc. Many teach children the alphabet song and encourage them to watch the TV program (Sesame Street) that features letters. Such a concentration of letter information enables most children to recognize, name, and begin printing letters before they reach first grade (we found, for example, an upper case letter naming mean of 90.7% and lower case mean of 85.4% in our Vancouver study). As children learn letters, they figure out what counts (shape, not size, and direction of lines, not color) (Gibson, Gibson, Pick, & Osser, 1962), and learn that each letter can be represented in somewhat different ways. Children usually recognize upper case letters before lower case letters, probably because these are what they see on signs and labels (Olson, 1958; McCormick & Mason, 1981). Some children become aware of the relationship between letter names (or taught letter sounds) and the phonemes or distinguishable sounds within words (Bissex, 1980; Chomsky, 1979; Clay, 1972; Morris, 1981; Paul, 1976; Read, 1971; Soderbergh, 1977).

The fact that there are substantial individual differences in acquisition of letter knowledge (a wide range of scores on a letter name task is typical; see Calfee, Chapman, & Venezky, 1972; deHirsch, Jansky, & Langford, 1966; McCormick & Mason, 1981) suggests that some parents play an important role here while others provide much less help for learning letters. For example, in the Vancouver study, 106 (52%) children correctly

named all 10 lower case letters we gave them. Twenty children knew fewer than 6 letters and 7 could name no letters. In a spelling task, 68 (34%) correctly spelled 4 three-letter words; 84 spelled half or less, and 16 could not identify a single letter in the words. In a reading task using nonwords that resemble real words, 27 children gave the correct sound for all (32) consonants, 18 knew all the short vowel sounds, and 6 knew half or more of the vowel digraph and vowel/silent e patterns. At the other extreme, 19 children could identify no consonant sounds, 51 could identify no short vowels, and 148 could identify no complex vowel patterns. While we failed to gather reliable data from parents about their support for reading, we assume that the extent to which parents support naming of letters, spelling and word reading affected children's knowledge about how to identify letters and words. This conclusion needs to be buttressed by further research.

Conventions of print. The third domain of early reading deals with metacognitive concepts for talking about and accomplishing reading tasks. Through social interactions with others, through book reading, printing, and schoolwork exercises, children learn how one is supposed to report or talk about what one has read and how to carry out reading and reading-related tasks.

One set of conventions surrounds how to talk about reading to a teacher. This not only demands substantial oral language

competence but also familiarity with the social interaction rules for classroom discourse. When, for example, ought a child speak out or initiate a conversation with the teacher, when is it more appropriate to raise a hand or in some other way request to be called on, and when must one remain silent. These implicit social rules used in classroom lessons have only recently been studied (Au & Mason, 1981; Boggs, 1972; Cazden, in press; Collins & Michaels, 1980; Mason & Au, 1981; Mehan, 1980; Philips, 1972; Sinclair & Coulthard, 1975). What appears to make social interactions hard or easy is the degree of cultural congruence between teacher and student. When the teacher and students are from differing social classes or cultural groups, smooth communication patterns are often disrupted. For example, in the Au and Mason study, one group of children was observed with two different teachers. One teacher used a social interaction structure where rules for talking were familiar to the Hawaiian children being taught. She allowed the children to initiate talk or to have open turns for 64% of the lesson time. The other teacher never used that approach; instead she required children to raise their hands or wait to be called on for 70% of the lesson time. This profoundly affected students' engagement in reading. The first mentioned teacher obtained almost twice as many reading-related responses and correct responses and over three times as much discussion of the content of the story being read as did the other teacher.

Another factor affecting social interactions in school lessons is the amount of knowledge children already have about the task. In the Mason and Au study, 4 preschool children from a southern Illinois town practiced letter, letter sound and word recognition, and story reciting tasks. A comparison of the second with the fifth lesson determined that while the teacher's remarks to the children decreased, the children's academically related remarks nearly doubled and their violations of turn-taking rules (e.g., interrupting or inserting a remark out of turn) diminished from 25% to 8% of their remarks. Further, in a comparison among the four children of their responses, the one child who had more knowledge about reading (based on an early reading test we had given before the lesson) responded more often and differently. He made far more academically relevant statements and quickly took on a leadership role in the group (by whispering answers or helping the other children), he began remarking about his plans ("I'm goin' to color in the pictures"), or accomplishments ("I made a gigantic t"; and he occasionally commented on the teacher's statements and directives. His leadership was reinforced by the teacher because by the fifth lesson she chose him to respond first to the harder tasks and challenged rather than helped, saying, "You have to be very good to find . . ." to him but "There's a couple more left. Let's look through them" to another child. That is, it was apparent that the teacher, after giving only four 20-minute lessons, had

picked him to be the model. He not only knew more about the reading tasks, but could talk about the tasks, describe his plans, monitor, and evaluate his success.

The other set of conventions in this third domain are those related to the action of reading or of doing reading-related tasks. It includes: (1) knowledge about how to hold a book, turn pages, and direct one's eyes while reading; (2) knowledge of terminology such as book parts (e.g., front, page), location terms (top, bottom), actions (make a circle, underline), size (a big or little word), and reading words (letter, word, sentence), and (3) knowledge about rules and procedures for school tasks such as reading, printing and writing, spelling, phonics exercises, and test taking. Early manifestations of knowledge about book handling are probably acquired through reading and rereading of books (Chomsky, 1977; Holdaway, 1979; Smith, 1980). Procedures for reading stories, writing, and spelling, when encouraged by parents and preschool teachers, are moderately well developed without instruction (Bissex, 1980; Clay, 1972; Ferreiro & Teberosky, 1981). Procedures for carrying out phonics exercises and answering reading test questions have not to our knowledge been tested but probably are not usually learned until children enter school.

Summary

The model predicts that children can acquire knowledge about three domains of reading before they enter school. Children

begin to understand the function of print through their opportunities to relate printed information to oral language; in so doing they refine their understanding of wordness in print form and begin to construct ways to derive meaning from print. Depending on the extent of support from adults for letter and word reading or writing activities, they begin to learn about the structure of print, utilizing informal cues from adults and their own analysis of words into letters, spelling patterns, and letter sounds. Through these experiences of acquiring functional and structural knowledge, they begin to use metacognitive strategies to regulate their reading tasks and they talk about reading, follow conventions of reading, participate in discussions about reading, and do school reading tasks. Of course, as children receive formal instruction in school, they modify and expand these earlier constructs. Nonetheless, because there is so much relevant information about reading that can be acquired before going to school, children who arrive in school with some information about the form, function and conventions of print are in a better position to excel under their formal instruction. Those who come to school with little or no knowledge about the function or form of print, will have grave difficulty both in understanding most school reading tasks and in regulating their accomplishment of the tasks.

Toward Verification of the Model

A principal goal of the two studies that will be briefly presented next was to test the claim that self-regulative behaviors appear in conjunction with tasks that are at an appropriate level of difficulty and that foster reading. The first study (Mason & McCormick, 1983) included an analysis of videotaped lessons given to low-middle income preschool children from a small college town attending a church run day care program. The second study (Mason, McCormick, & Bhavnagri, 1983) focused on an analysis of videotaped story reading lessons of preschool children in a public school sponsored Head Start classroom from a low income region of Illinois. Schools in rural areas and small towns were chosen in order to test and observe children who had very little knowledge about how to read. That was indeed true. They knew few letter names and could not print or recognize any words. Thus, we were relatively confident that the reading lessons we gave them were the first they had ever received and that changes in knowledge about reading were likely to have been initiated by our instruction.

Study One

One of the lessons given to two groups of four children was analyzed in order to determine whether, as hypothesized, word analysis tasks were harder than letter and word recognition tasks. After studying the videotapes, three measures of teacher instructional intent were chosen: (a) number of explicit

directives given to children to carry out a task; (b) number of implicit directives to carry out a task; and (c) number of teacher answers or clues given (or repeated) to a lesson question. Four types of student responses were counted: (a) number of correct responses to lesson questions (answers given simultaneously by more than child were individually counted; (b) number of response repetitions, that is, correct answers already given by the teacher or another child; (c) number of no responses, where nothing was said when an answer was requested by the teacher; and (d) number of wrong responses, when attempts by children to answer were incorrect. Two raters separately tabulated these activities, settling any disagreements in conference.

The tasks are presented in Table 1 rearranged according to their instructional difficulty. Tasks at the top of the table (Level 1) were expected to be easier because children can tie letters and words to things that are meaningful. They understand how to remember words in a simple story, copy letters, and name letters. Tasks at the bottom of the Table (Level 2) were expected to be more difficult, because they require children to know a more complex aspect of the form of print, how letter sounds can be heard and identified in words.

Insert Table 1 about here.

Children's responses to questions indicated that Level 1 tasks were much easier. There were far more child responses with Level 1 than Level 2 tasks (78 versus 30), and a much greater percent were correct (79% versus 3%). The poorer performance of the children with Level 2 tasks could not be ascribed to fewer requests by the teacher to answer. The teacher issued 35 directives (e.g., "Find a t") with Level 1 tasks and 47 directives with Level 2 tasks. She gave feedback almost as frequently with Level 2 tasks (41) as Level 1 tasks (56). It is apparent that task difficulty, not the context for working, caused the low correct response rate to Level 2 tasks.

As we studied the lesson, it was apparent that there were qualitative differences as well between children's responses to the two types of tasks. An analysis of children's unsolicited comments was the key. It showed that when children were asked to carry out tasks which were oriented around their understanding of the task, they monitored the lesson and their performance, commenting on the task, and evaluating or soliciting help with appropriate questions. Here are examples from 2 lesson transcripts of children's responses to Level 1 tasks.

Hey, my name is on the next card.

I got 2 big ones (cards, printed with capital letters).

I know how to make my name.

There's my whole name.

Want me to make a smaller m?

I can't make m's.

I wanna read that all by myself.

I don't know what that says (one word under a picture).

I didn't get a turn.

With Level 2 tasks, there were virtually no metacognitive remarks. Instead, the children remained silent, tried to change the subject, or asked to leave or to do another task. Here are examples from the same two lessons in which the children were asked to make pictures of words beginning with t or m.

(1) T: Who could make/ a turnip?

AN: What is that -

What is that thing for up there?

(2) T: What are you doing? Let's make a T word. And then we'll put the T with it.

CH: Hey, but that's a --

T: A picture of a T word.

(3) T: OK Jessie put your monster 'n your mouse 'n your mud in the folder. That's very good. (Teacher has just had children draw pictures of objects beginning with m.)

AN: I wanna make a flower.

(4) JE: I'm goin make a fish.

(5) TO: I'm goin back outside.

The transcript analyses indicate that the children made task-sustaining, supportive comments during Level 1 activity but

task-obstructive, antagonistic comments during Level 2 activity. As a result, the type of task affect not only the number of correct responses but, pertintent to the issue here, children's realization or use of metacognitive constructs and lesson cohesiveness.

Study two. In this study a Level 1 task, story reciting, was analyzed in order to determine whether increases in metacognitive behaviors could be fostered among children from a Headstart center who had experienced no story reading experience at home or school. Videotapes from October and April lessons were transcribed to obtain the visiting (experimental) teacher's and children's discourse during four lesson phases of each story: opening (introduction), modeling (teacher reads the story one or more times), tryout (children take turns reciting the story), close (teacher ends the lesson). All remarks were categorized including children's unsolicited comments during each lesson phase. Second, running transcriptions were made of two of the children--Keith, a child who spoke less infrequently than the others in the group and Shawn, a child who was the most verbal. Both analyses provided evidence of incipient metacognitive behavior.

The October videotape was almost completely berift of child-initiated remarks, despite the teacher's attempts to engage them in conversation. Groups of 4 or 5 children, dressed in Halloween costumes, lined themselves stiffly against a wall on a rug where

we had told them to sit, asked no questions about the videotape equipment or why we strangers were there, and waited silently for our directives. Three groups were read a Halloween story and given opportunities in chorus and singly to recite the words. Here are all of their self-initiated remarks (Group 2 made none).

(1) William, Group 1: I'm a happy ghost (comment made as teacher showed cover of book).

(2) Shawn, Group 3: William used to be a ghost (said just before first reading)

(3) Shawn, Group 3: Heh! I am a big boy (said softly during the reading)

(4) Shawn, Group 3: Are we going to be done in just a little bit (asked during 3rd tryout)

(5) Shawn, Group 3: The big one (said as the teacher read, "A scary ghost")

(6) Shawn, Group 3: Ghosts don't say that . . . (comment made after 5th tryout)

(7) Keith, Group 3: Do that again (requested after second tryout)

(8) Keith, Group 3: You scare me (said after 6th tryout)

Four or five of the remarks (1, 2, 3, 8, and possibly 4) indicate that the children were monitoring the situation but not necessarily the story. One comment (7) indicates planfulness, one (5) is an incorrect attempt to predict the words in the

story, and one (6) suggests an evaluation of the story meaning. There were no instances of responses to the teacher's predictive questions. All other remarks were repetitions and answers to simple questions.

The April videotape was made after we had given all the children several copies of little books to take home, had convinced the regular teacher that the copies we gave her needed to be kept in easy reach of the children (instead of in a loft reached by a ladder), and had encouraged her to read books to the children. The children were now very responsive and made many self-initiated remarks, both on the reading of the new story and on the review story. Tabulation of the three groups' lesson yielded 68 child-initiated remarks and 21 responses to the teacher's request for a prediction, or altogether 89 metacognitive verbalizations.

Planfulness was clearly operating in April, with 13 requests for turns or to "do it by myself" (in comparison to 1 in October). Monitoring of story meaning was much more evident in April in that children initiated 31 comments about the story (rather than 1 in October) and made 21 solicited and 21 unsolicited predictions about the words that would appear on the next page (one prediction had occurred in October). Evaluation of the story content also occurred, but still not often, only three times.

The other kind of evidence of self regulation was obtained by studying the barely audible verbal and the nonverbal behaviors of several children. Here are the reports of two of them, Keith and Shawn, again comparing the two time periods. These transcriptions indicate that counting audible remarks and responses did not tell a complete story. Even at the first session, the children were not ignoring the lesson but were following and trying out responses that the teacher was modelling. Metacognitive constructs for lesson participation seemed to be emerging.

Keith, October Session, Group 3. Keith has his legs stretched out, back against the wall and hands folded on his lap. He looks in the direction where the teacher is pointing as she introduces the ghost story by reminding them that there is a ghost in the classroom now (the children are dressed in Halloween costumes). He nods his head vigorously and says, "yeah" along with Shawn when the teacher asks, "William was dressed up as a ghost this morning, wasn't he?" As the teacher reads the story, he seriously listens but does not react when the teacher reads the last line "Boo" until the teacher and Shawn began laughing. Then he smiles. On the first tryout, he answers correctly, "Ghosts," when asked what the story was about. He listens in a relaxed fashion, shaking his feet, legs stretched out. He giggles and looks at Shawn when the teacher says, "Boo." He smiles throughout the second tryout, slightly ahead of the

teacher when asked to recite one page that says, "Sad ghost." On the last page, "Boo," he says it, grins, intertwines his fingers and brings them to his face, pulls his leg up, tugging at his sneakers, and then requests, "Do that again." He nods his head up and down in agreement when the teacher then asks, "Should we do that once more?" He joins the teacher with the "Sad ghost" page, and raises his eyebrows when the teacher says "Big Ghost." Otherwise he smiles and listens throughout the third tryout, then stretches his hands and turns his hands up when the teacher says, "Boo." To initiate tryout 4, the teacher asks, "Who can remember the story? Do you think you could?", as she points to Keith. He smiles, nods, and answers when the teacher says, "What's this about? . . . What's the first one . . . this next one. He hesitates on four of the six pages so that the teacher coaches by saying the words just before he does on all but the pages saying, "Little ghost" and "Boo." On the fifth tryout, as Shawn does the reciting Keith smiles and watches Shawn demonstrate with hand movements the words big and little. On the sixth tryout, he also demonstrates big and little, now anticipating "Little ghost," by bringing his hands together before the teacher turns the page. He smiles, pulls out his tongue and moves his arm around at the last word, "Boo," then says to the teacher, "You scare me."

Keith, April Session, Group 2. Sitting crosslegged with hands on his lap, Keith whispers to himself, "Eggs" as the teacher shows the cover of the book. When the teacher asks,

"What do you think this might be?", he changes his mind and says, "Snowballs." Then as she says, "What else . . .", he smiles as he says confidently to everyone, "Eggs." Later, as the teacher tries to begin reading, he interrupts with, "There's chickens in it," and nods his head when she asked, "You think so?" A second time as she tries to begin reading, he interjects, "How about a giant egg?" She agrees that it might be and then begins reading during wh ch he listens attentively, smiling, and responding along with other children. To the teacher's predictive question, "What's on the next page?", he says correctly, "Four." He responds slightly after the others on the last page when the teacher asks, "Who can -- Can you make a quack?" However, on the first tryout, when she asks, "Let's see if we can do that -- you can do it by yourself." He enthusiastically says promptly, "I can." Then as she sets the rules, "We'll do it one at a time. OK, we'll start with --," he interjects "Me," smiling with dimples as he gets to be first and the teacher responds, "Good." After his turn, he silently mouthes some of the words as other children take their turns, looking at the page and then at the child who is responding. On the last page, he joins in with "Quack." On the second tryout the child to his left asks to be first so the teacher begins with her. After three children have turns, he exclaims, "I didn't get mine." While waiting for his turn, he bites his nails and scratches his leg until the teacher says, "OK, Keith, here's

your chance. we have one, two, three, four, and then what?" He smiles as he responds correctly "Five." She prompts, "Five baby —" Two other children answer, "Chicks." She prompts again, "How do they go?" Keith answers, "Peep."

The teacher now asks them to read a story that they had in the classroom and have taken home. She introduces it by saying, "Remember this one?" He is the fist to respond, "Apples." His fingers are puckering his lips and his other hand is tugging at his boots but at the same time he listens attentively as the other children respond in unison to the teacher's prompts about the words on each page. As soon as the first reading is over, he anticipates individual participation and so lunges forward, moves his mouth, tilts his head a little back and points to himself (implying he wants his turn now) as the teacher says, "OK, let's see now." So she turns to him. "What's the first page, Keith?" He responds correctly, "Red apples" and puts each hand on a knee and rocks himself. He says something to himself when the next child responds. When it is again his turn, he responds confidently, "Yellow apples," and rocks back and forward vigorously but listening attentively while others recite the other pages.

Shawn, October Session, Group 3. Shawn nods when the teacher comments on having ghosts in the classroom and looks in the direction the teacher points. He listens with a smile and after the page about the big ghost, comments, "Heh! I am a big boy."

On the first and second tryouts, he softly repeats several of the story words after the teacher, giving the word, ghost, when the teacher has said, "A big ghost" and "A little ghost." He watches carefully and imitates her mouth movements, trailing behind the narration. On the third tryout, he asks, "Are we going to be done in just a little bit?" The teacher nods and continues to help children say the story. He participates cheerfully, smiling right away. He shapes his mouth the way he sees the teacher doing it and attempts to imitate her expression. His smile vanishes when the teacher says, "Sad ghost" and makes a rounded mouth and nods when the teacher says, "He's got that scary mouth on him." On the fourth tryout, he continues to monitor and imitate the teacher's words. By the fifth tryout, he has added arm movements, spreading his arms wide after seeing the teacher make the same gesture to denote bigness and putting them down when she says, "Little ghost." At the end, after "Boo," he interjects, "Hey! Ghosts don't say that. They go waah." The teacher retorts, "Yeah, he could go like that. This one goes Boo." As she begins the last tryout, he interrupts, "He goes waah." Then he continues to be a participator, smiling and responding appropriately.

Shawn, April Session, Group 3. Shawn is sitting on his knees, with hands on legs, watching attentively. When the question comes up about what is pictured on the cover, he offers, "Circles." The teacher agrees but suggests that they might also

be eggs. He responds to the next question about one of the eggs, saying, "Big" and joins in when they count the eggs. As she begins reading, he softly joins on the "peep" and then initiates a prediction about the second page, "Two baby chicks," and then the next, "Three baby chicks." When the teacher responds, "You think?", he smiles, nods his head with excitement and pops his eyes wide. Then before that page is completed, he predicts the next page, "Four baby chicks, four baby chicks." Before each page, he makes a prediction until the last page, he predicts "six" but when the page is turned and he does not see six eggs, he becomes serious and the smile vanishes. Now he shakes his head and tries to repeat after the teacher the correct line, "One baby duck" but instead says, "Big baby duck." Even though corrected, he smiles and joins in for the last word, "Quack." On the first tryout, the teacher makes an error, saying, "One baby duck," notices her error, at which time Shawn adds, "Yeah, sure, baby duck isn't right." After the teacher agrees, he tries to correct it for her, "Two baby chicks" (instead of one). Throughout this tryout, he predicts the number of chicks to be on the next page before she can say it, with a serious, quick and alert expression. After the page of five chicks, he forgets and predicts "six" but as the page is turned, he shakes his head and says to himself, "Nope," smiles, and then nods approvingly when the teacher says, "One baby duck." After another child's critical comment about the picture of the duck, he points to the

picture and compares the size of the chicks with the duck. The teacher agrees with his remark. On the second and third tryouts, he continues to participate by predicting the number of chicks, no longer making the error of "six chicks."

Next the teacher offers the review book, Apples, for them to recite. He points to the book, mumbling about having taken the book home. He participates, saying with the others the color names of the apples. He carefully looks at the pictures when children take their individual turns during the first tryout, smiling and responding correctly on his turn. In response to the last page, "Blue apples, yuk," he comments that he does not like blue apples. He and the teacher chuckle and then he makes a screwed up face and says, "Yuk." As the teacher announces the second tryout, he interjects the name of the book, "Apples," and then participates in the story reciting. After this reciting, the teacher praises them, "You know that one so well . . . " He interjects, "Let me, let me do it all by myself." She agrees and he lunges forward and is speedy in saying the words on each page, making only one error which the teacher corrects, "Two apples" instead of "Red apples." When other children get a turn, he listens seriously, mouthing some of the words with them and smiling radiantly when another child says the last word, "yuk."

Interpretation. Two time comparisons were made in this study one of verbal responses and remarks by children and the other of barely audible and nonverbal responses. The first

comparison indicates that story reading, while initially difficult, will eventually be an effective way for young children to learn about reading. It also indicates that a reluctance to initiate predictions, to comment on a story or to voice reactions to a story can be influenced by opportunities to look at and use book materials. For, in contrast to the earlier videotaped sessions, the April session found the children deeply involved in the topic and story reading. The children had so much to say about the cover page that the teacher could not begin reading for several minutes. While reading to them she had difficulty continuing because they interjected predictions and comments about the pictures and words.

The second time comparison, an analysis of nonverbal behaviors, indicates why. What was initially thought to be passive, unresponsive reactions to the story reading was upon a close examination found to contain private or inconspicuous attempts to behave similarly to the teacher. In October the children were silently monitoring the teacher's story reading behavior and trying out some of her moves. While they were learning how to participate in story reading, a clear expression of what they were learning was not verbalized to the teacher and classmates until much later. However, it appears that the children's nonverbal responses were important precursers to the more clearly identifiable metacognitive verbalizations that occurred in the April lesson. This suggests that planning how to

take a part in a story reading lesson and monitoring the comprehension of the story can be fostered through teacher-directed story reading sessions if children receive ample opportunities to listen to, talk about, and recite stories.

Conclusion

The two studies, while only a small part of many on early reading, demonstrate how to avoid some of the hazards of studying young children's reading. First, the studies show that young children are learning about reading before they read and that if we study their attempts, we will be in a firmer position to offer effective reading instruction. Second, looking at children's responses with contrasting tasks and with the same task over a period of time helps to explain how reading experiences play a more substantial role than maturation. Third, studying children's error patterns and attempts to participate in reading tasks give richer information about what they are learning than a tabulation of their correct responses.

The studies also provide some evidence for the third component of the early reading model. First, metacognitive constructs appear among children as young as four years if the task is understandable, can be tied to something they already know, and is given in a clearly modeled task situation. Evidence comes from children's verbal responses to the task, that attempt to relate the story content to their knowledge and that predict the content and organization of the task. It also comes from

children's descriptive remarks to tasks that they do not understand as they try to change the subject, modify the task, or avoid participating.

Second, metacognitive constructs are initiated by indistinct monitoring of the task, setting, and topic and by inaudible shadowing of correct responses. Children who give no verbal indication of monitoring the task, on close analysis, are evidently watching very closely and practicing the responses that the teacher requests, that she demonstrates with arm and body movements, and that she emphasizes with voice pitch and facial expression.

Third, metacognitive constructs are fostered by instruction that encourages talking about, expressing and obtaining corrective feedback on tryouts. Well orchestrated repetitive activities allow young children to plan how to participate, help them figure out how to give correct responses, and encourages evaluation of information that conflicts with their own knowledge. Learning to do this, I maintain, is critical to learning to read with comprehension. That such young children, who were nonreaders when given the lessons, began to organize and keep track of the reading lesson and its meaningful content attests to the power of metacognitive constructs and to the value of reading-like activities that mimic critical aspects of the reading act.

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Table 1

Instruction for Level One and Level Two Tasks

Tasks	Teacher Activity			Student Response			
	Answer or clue	Explicit directive	Implicit directive	Correct	Repetition	None	Wrong
Level 1 Tasks							
Identifying own printed name	1	6	0	3	0	1	1
Printing t	1		0	4	0	0	0
Finding t in box of letters	2	9	0	13	0	0	1
Reading of story[a] by teacher	19	0	0	-	-	-	-
First reading by children	12	4	0	10	0	0	2
Second reading by children	3	3	3	17	6	0	0
Review story first reading	10	5	1	5	2	0	1
Review story second reading	8	0	4	10	0	0	2
Level 2 Tasks							
Telling words that begin with t	9	10	0	0	3	6	0
Making pictures that begin with t	23	21	0	1	2	2	3
Pointing to t in words in story	9	16	0	0	6	4	3

[a]Each content word in the story that was read or repeated by the teacher was counted as an example. There were 16 content words in the new story and 10 content words in the review story.